



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: **George et al.**

Serial No.: **09/717,809**

Filed: **11/21/2000**

For: **Method and system for  
an Object Model with  
Embedded Metadata and  
Mapping Information**

\$ Group Art Unit: **2177**

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\$ Examiner: **Robinson, G.**

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\$ Atty Docket #: **AUS9-2000-0551-US1**

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on January 31, 2005.

By: 

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**APPELLANT'S BRIEF**

**IN RESPONSE TO OFFICE ACTION UNDER 37 C.F.R. § 41.37**

10 This brief is filed in support of the Notice of Appeal,  
filed 07/30/2004, and which appealed the rejection of claims 1-5,  
11-15, 20-22, and 27 from the decision of the examiner dated  
02/03/2004; a petition for an extension of time is included in  
this response.

15 Please refer to the PTO-2038 form that is included in this  
response for payment information to cover the cost of filing a  
brief in support of an appeal as set forth in 37 C.F.R.  
41.20(b)(2), which is (\$500), fee code 1402.

20 No additional fees are believed to be necessary for this  
response; if, however, any additional fees are necessary, please  
charge Deposit Account No. 50-1888 of Joseph Burwell to cover the  
cost of the fees, and any deficiency or overpayment should be  
charged to the above-numbered deposit account.

**I. REAL PARTY IN INTEREST**

The real party in interest in this appeal is International Business Machines Corporation (IBM).

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**II. RELATED APPEALS AND INTERFERENCES**

With respect to other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal, there are no such appeals or interferences.

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**III. STATUS OF CLAIMS**

Claims 1-27 are pending in this application; claims 1-5, 11-15, 20-22, and 27 have been finally rejected; claims 1-5, 11-15, 20-22, and 27 have been appealed. Claims 6-10, 16-19, and 23-26 have been objected to. No claims have been canceled, withdrawn, or allowed.

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**IV. STATUS OF AMENDMENTS**

No after-final amendments have been filed.

## V. SUMMARY OF CLAIMED SUBJECT MATTER

A method and system are presented for storing object attribute data in a database. Metadata is retrieved from the database (Figure 5), e.g., by querying the database; the metadata includes information about database limitations, such as record constraints, field constraints, and/or size limits (Specification, page 17, line 14). The database may be a relational database in which object attributes correspond with columns of relational tables. Semantic information is retrieved from a mapping repository (Figure 5); the semantic information indicates a manner in which object attribute data is stored in the database, such as by providing a mapping between object attributes and records in a relational database (Page 16, line 32). The metadata and the semantic information can be transformed into or stored in XML-formatted documents (Page 19, line 12). The object attribute data is stored in the database according to the semantic information and the metadata (MapInfo component 508, page 16, line 25; Figures 6A-6B, page 18, line 31). If the object attribute data has characteristics that conflict with the database limitations indicated within the retrieved metadata, then the object attribute data can be modified so that the object attribute data does not have characteristics that conflict with the database limitations, and the modified object attribute data can then be stored into the database without error (Page 22, line 10). Heuristic information can also be used to modify the object attribute data in accordance with system policies (Page 21, line 25).

## **VI. Grounds of rejection to be reviewed of appeal**

The grounds of rejection that are on appeal are:

whether claims 1-5, 11-15, 20-22, and 27 under 35 U.S.C. §  
5 102(e) are anticipated by Hattori et al., "Object-Oriented Data  
Storage and Retrieval System Using Index Table", U.S. Patent No.  
6,539,388 B1, filed 10/22/1998, issued 03/25/2003.

## **VII. ARGUMENTS**

10 The claims stand and fall together.

**VII.A. Was 35 U.S.C. § 102(e) properly applied in a rejection  
of claims 1-5, 11-15, 20-22, and 27 as being anticipated over  
15 Hattori et al.?**

### Arguments in support of separate patentability

Independent 1 is the broadest claim in the patent  
application. Hence, for purposes of this argument, Appellant  
20 argues for the patentability of the present invention using claim  
1 as an exemplary claim.

### Contrasting the present invention and *Hattori et al.*

With respect to the first element of independent claim 1,  
25 i.e. "retrieving metadata from the database, wherein the metadata  
indicates database limitations", the rejection states that  
Hattori et al. discloses the first element as follows: "metaindex  
management section element 440 and database 310 figure 15; figure  
21". The metaindex management section 440 is described in  
30 Hattori et al. as follows:

The metaindex management section 440 manages a metaindex as index data which is secondarily given to an object index of primary level, and retrieves an object having the index from objects managed by the object management device 100, on the basis of a description using the given metaindex. A metaindex means an index of abstract level corresponding to the view for an external application. The basic index is not limited to an index of primary level. A metaindex can be secondarily given to another metaindex. An index of primary level means an index description used to access an object having the index and stored, unlike a data index or indirect data index itself which directly or indirectly points a data component.

As should be apparent by reference to the above-cited section and elsewhere within Hattori et al., a metaindex is a type of abstract index into the database. In contrast with the present invention, **the metaindex of Hattori et al. is not similar to the metadata in the present invention in which the metadata provides information about limitations or constraints of the database.** More importantly, Hattori et al. fails to disclose the first element of claim 1 as asserted by the rejection, and Hattori et al. is therefore deficient as an anticipatory reference.

Appellant asserts that it appears that the above-noted features in Hattori et al. have been used as the basis for a rejection solely because of a similarity in terminology between an element in Hattori et al. and an element in the claims; in other words, the rejection improperly attempts simple term-matching, which is not a proper basis for a rejection if the elements are not similar. A similar argument was given for dependent claim 4, i.e. "wherein the semantic information provides a mapping between object attributes and records in a relational database", when the rejection states that this feature is shown in Hattori et al. at column 32, lines 46-49, as follows: "wherein the index management section has a metaindex management

section for holding a correspondence between a metaindex  
secondarily added to the index and the index as a base of the  
metaindex". Appellant notes that this argument is merely a  
continuation of the attempt at an improper term-matching argument  
5 that was applied against the first element of claim 1.

With respect to the second element of independent claim 1,  
i.e. "retrieving semantic information from a mapping repository,  
wherein the semantic information indicates a manner in which  
object attribute data is stored in the database", the rejection  
10 states that Hattori et al. discloses the second element as  
follows: "figure 16; figure 38; column 22 lines 4-28; col. 30  
lines 19-36; col. 17 line 47 through col. 18 line 41". Appellant  
asserts that the rejection is purposely unclear about which  
element in Hattori et al. discloses the second element in claim 1  
15 because the rejection points to two different figures and  
approximately two columns of text in Hattori et al. without  
providing a definitive statement about any of the dozens of  
elements in the text and figures that supposedly disclose the  
second element of independent claim 1. More importantly,  
20 Appelleant asserts that the step of "retrieving semantic  
information from a mapping repository ..." is not disclosed in  
Hattori et al.. Again, Hattori et al. fails to disclose an  
element of claim 1 as asserted by the rejection, and Hattori et  
al. is therefore deficient as an anticipatory reference.

25 Furthermore, the rejection does not provide any argument  
with respect to the third element of independent claim 1, i.e.  
"storing object attribute data in the database according to the  
semantic information and the metadata". In other words, the  
Office action completely fails to address the third element of  
30 claim 1, which Appellant asserts clearly supports a finding that  
the rejection is not a proper anticipatory rejection.

More importantly, the claim clearly recites that the metadata information and the semantic information are both used when storing object attribute data in the database, not just semantic information. This feature is not disclosed in Hattori et al.. Given that the rejection of claim 1 does not explain how Hattori et al. discloses the third element of claim 1 and that Hattori et al. fails to disclose the third element of claim 1, Hattori et al. is further deficient as an anticipatory reference.

Rejections are deficient with respect to requirements for a proper anticipation rejection

Clearly, the rejection has not carefully considered the elements of claim 1 nor has the rejection pointed out the claimed features within Hattori et al. as is required for a proper anticipation rejection. More importantly, Hattori et al. does not disclose the claimed features and cannot be used as an anticipation reference. As stated at MPEP § 2131: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Hence, the rejection of claim 1 over Hattori et al. is improper. For this and other reasons, Appellant argues that the position of the Examiner should be reversed and that the rejection of claim 1 should not be upheld.

#### VIII. APPENDIX OF CLAIMS

1. A method for storing object attribute data in a database,  
the method comprising the steps of:

5       retrieving metadata from the database, wherein the metadata  
indicates database limitations;

          retrieving semantic information from a mapping repository,  
wherein the semantic information indicates a manner in which  
object attribute data is stored in the database; and

10       storing object attribute data in the database according to  
the semantic information and the metadata.

2. The method of claim 1 wherein the database limitations are  
selected from a group comprising record constraints, field  
15 constraints, and/or size limits.

3. The method of claim 1 further comprising:

          storing the metadata using markup language to identify the  
metadata.

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4. The method of claim 1 wherein the semantic information  
provides a mapping between object attributes and records in a  
relational database.



5. The method of claim 1 further comprising:

storing the semantic information using markup language to identify the semantic information.

5 6. The method of claim 1 further comprising:

determining whether or not the object attribute data has characteristics that conflict with the database limitations indicated within the retrieved metadata; and

10 in response to a determination that the object attribute data has characteristics that conflict with the database limitations, modifying the object attribute data so that the object attribute data does not have characteristics that conflict with the database limitations.

15 7. The method of claim 1 comprising:

retrieving heuristic information; and

modifying the object attribute data in accordance with the heuristic information if the object attribute data has characteristics that conflict with the database limitations.

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8. The method of claim 1 wherein the metadata and the semantic information are retrieved during an initialization phase of an object model that uses the metadata on behalf of a client of the object model.

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9. The method of claim 1 comprising:

retrieving heuristic information, wherein the heuristic information and the metadata are cached within an object model; and

10 modifying the object attribute data within the object model on behalf of a client in accordance with the heuristic information if the object attribute data has characteristics that conflict with the database limitations such that the modified object attribute data can be stored into the database without  
15 error.

10. A method for storing object attribute data in a database,  
the method comprising the steps of:

retrieving metadata from the database, wherein the metadata  
indicates database limitations;

5 retrieving semantic information from a mapping repository,  
wherein the semantic information indicates a manner in which  
object attribute data is stored in the database;

retrieving heuristic information, wherein the heuristic  
information and the metadata are cached within an object model;

10 modifying the object attribute data within the object model  
on behalf of a client in accordance with the heuristic  
information if the object attribute data has characteristics that  
conflict with the database limitations; and

storing the modified object attribute data in the database.

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11. An apparatus for storing object attribute data in a database, the apparatus comprising:

first retrieving means for retrieving metadata from the database, wherein the metadata indicates database limitations;

5 second retrieving means for retrieving semantic information from a mapping repository, wherein the semantic information indicates a manner in which object attribute data is stored in the database; and

storing means for storing object attribute data in the  
10 database according to the semantic information and the metadata.

12. The apparatus of claim 11 wherein the database limitations are selected from a group comprising record constraints, field constraints, and/or size limits.

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13. The apparatus of claim 11 further comprising:

storing the metadata using markup language to identify the metadata.

20 14. The apparatus of claim 11 wherein the semantic information provides a mapping between object attributes and records in a relational database.

15. The apparatus of claim 11 further comprising:

storing the semantic information using markup language to identify the semantic information.

5 16. The apparatus of claim 11 further comprising:

determining means for determining whether or not the object attribute data has characteristics that conflict with the database limitations indicated within the retrieved metadata; and

10 first modifying means for modifying, in response to a determination that the object attribute data has characteristics that conflict with the database limitations, the object attribute data so that the object attribute data does not have characteristics that conflict with the database limitations.

15 17. The apparatus of claim 11 comprising:

third retrieving means for retrieving heuristic information; and

20 second modifying means for modifying the object attribute data in accordance with the heuristic information if the object attribute data has characteristics that conflict with the database limitations.

18. The apparatus of claim 11 wherein the metadata and the semantic information are retrieved during an initialization phase of an object model that uses the metadata on behalf of a client of the object model.

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19. The apparatus of claim 11 comprising:

retrieving means for retrieving heuristic information, wherein the heuristic information and the metadata are cached within an object model; and

10        modifying means for modifying the object attribute data within the object model on behalf of a client in accordance with the heuristic information if the object attribute data has characteristics that conflict with the database limitations such that the modified object attribute data can be stored into the  
15        database without error.

20. A computer program product in a computer readable medium for use in a data processing system for storing object attribute data in a database, the computer program product comprising:

instructions for retrieving metadata from the database,

5 wherein the metadata indicates database limitations;

instructions for retrieving semantic information from a mapping repository, wherein the semantic information indicates a manner in which object attribute data is stored in the database; and

10 instructions for storing object attribute data in the database according to the semantic information and the metadata.

21. The computer program product of claim 20 wherein the database limitations are selected from a group comprising record  
15 constraints, field constraints, and/or size limits.

22. The computer program product of claim 20 wherein the semantic information provides a mapping between object attributes and records in a relational database.

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23. The computer program product of claim 20 further comprising:

instructions for determining whether or not the object attribute data has characteristics that conflict with the database limitations indicated within the retrieved metadata; and

5 instructions for modifying, in response to a determination that the object attribute data has characteristics that conflict with the database limitations, the object attribute data so that the object attribute data does not have characteristics that conflict with the database limitations.

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24. The computer program product of claim 20 comprising:

instructions for retrieving heuristic information; and

instructions for modifying the object attribute data in accordance with the heuristic information if the object attribute data has characteristics that conflict with the database limitations.

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25. The computer program product of claim 20 wherein the

metadata and the semantic information are retrieved during an

20 initialization phase of an object model that uses the metadata on behalf of a client of the object model.



26. The computer program product of claim 20 comprising:

instructions for retrieving heuristic information, wherein the heuristic information and the metadata are cached within an object model; and

5 instructions for modifying the object attribute data within the object model on behalf of a client in accordance with the heuristic information if the object attribute data has characteristics that conflict with the database limitations such that the modified object attribute data can be stored into the  
10 database without error.

27. A computer program product in a computer readable medium for use in a data processing system for storing object attribute data in a database, the computer program product comprising:

instructions for retrieving metadata from the database,

5 wherein the metadata indicates database limitations;

instructions for retrieving semantic information from a mapping repository, wherein the semantic information indicates a manner in which object attribute data is stored in the database;

10 instructions for retrieving heuristic information, wherein the heuristic information and the metadata are cached within an object model;

instructions for modifying the object attribute data within the object model on behalf of a client in accordance with the heuristic information if the object attribute data has  
15 characteristics that conflict with the database limitations; and

instructions for storing the modified object attribute data in the database.

**IX. Evidence appendix**

None.

5 **X. Related proceedings appendix**

None.


**XI. Conclusion**

10 In view of the above arguments, it is respectfully urged  
that the rejection of the claims should not be sustained.

DATE: January 31, 2005

Respectfully submitted,

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